



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/549,345

01/31/2006

Daniel R. Greve

428-US-PCT

6712

45821

7590

08/18/2009

LUNDBECK RESEARCH USA, INC.

ATTENTION: STEPHEN G. KALINCHAK, LEGAL

215 COLLEGE ROAD

PARAMUS, NJ 07652

EXAMINER

YOUNG, SHAWQUA

ART UNIT

PAPER NUMBER

1626

MAIL DATE

DELIVERY MODE

08/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/549,345 | Applicant(s) GREVE ET AL. | |
| | Examiner SHAWQUIA YOUNG | Art Unit 1626 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/12/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 18-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7,9,10,13-15 and 17 is/are rejected.
- 7) ☒ Claim(s) 4,8,11,12 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-31 are currently pending in the instant application. Claims 1-3, 5, 6, 7, 9, 10, 13, 14, 15 and 17 are rejected, claims 4, 8, 11, 12 and 16 are objected and claims 18-31 are withdrawn from consideration in this Office Action.

I. *Response to Argument/Remarks*

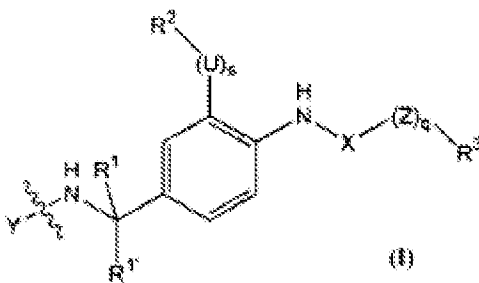
The Examiner has extended the prior art search as discussed with Applicants' attorney Margaret Buck and will be discussed in full detail below.

Applicants' amendment filed on May 12, 2009 has overcome the objection to the abstract and therefore the objection has been withdrawn.

II. *Status of the Claims*

i. Scope of the Extended Search and Examination of Elected Subject Matter

The Examiner has extended the prior art search as discussed above. The scope of the extended search and examination of the elected subject matter is the compounds of formula (I) in claims 1-17 wherein:



s is 0;

R² is C₁ alkyl;

X is CO;

q is 0;

R¹ and **R^{1'}** is as defined in claim 1;

R³ is C₁ alkyl ;

Y is the group of formula IX;

f is as defined in claim 1; and

two R⁵ substituents together with the carbon atoms to which they are attached form a 6-membered cycloalkyl ring

ii. Extended Prior Art Search M.P.E.P. §803.02

If upon examination of the elected species, no prior art is found that would anticipate or render obvious the instant invention based on the elected species, the search of the Markush-type claim will be extended. See M.P.E.P. § 803.02 (2001). If prior art is then found that anticipates or renders obvious the non-elected species, the Markush-type claim will be rejected. It should be noted that the prior art search will not be extended unnecessarily to cover all non-elected species. Should Applicant overcome the rejection by amending the claim, the amended claim will be

reexamined. Id. The prior art search will be extended to the extent necessary to determine patentability of the Markush-type claim. Id. In the event prior art is found during reexamination that renders obvious or anticipates the amended Markush-type claim, the claim will be rejected and the action made final. Id.

As indicated above, Examiner searched the compound based on the elected species, above, in response to the requirement to restrict the products of Formula (I), wherein: there was prior art of record that anticipated or rendered obvious the elected species and therefore the scope of the subject matter was **not extended or broadened** in pursuant to M.P.E.P. § 803.02.

iii. Non-elected Subject Matter Withdrawn 37 C.F.R. §1.142(b)

The non-elected subject matter withdrawn are the compounds of formula (I) in claims 1-17 (in part) that have not been searched and examined which exclude the previously searched compounds in the first office action and the above searched compounds.

III. ***Rejection(s)***

35 USC § 103 - OBVIOUSNESS REJECTION

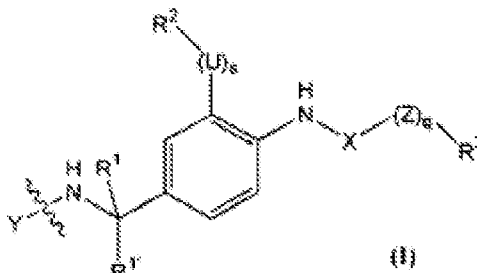
The following is a quotation of 35 U.S.C. § 103(a) that forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Graham v. John Deere Co. set forth the factual inquiries necessary to determine obviousness under 35 U.S.C. § 103(a). See *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Specifically, the analysis must employ the following factual inquiries:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 5, 6, 7, 9, 10, 13, 14, 15 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Janssen, et al.* (US Patent 5,087,743). Applicants



claim a compound of formula

wherein s is 0; R^2

is C_1 alkyl; X is CO; q is 0; R^1 and $R^{1'}$ is as defined in claim 1; R^3 is C_1 alkyl; Y is the group of formula IX; f is as defined in claim 1; and two R^5 substituents together with the

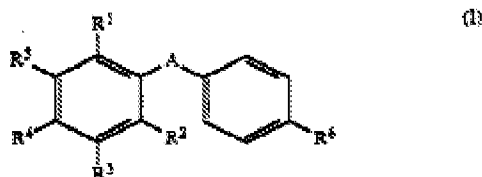
Art Unit: 1626

carbon atoms to which they are attached form a 6-membered cycloalkyl ring.

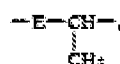
The Scope and Content of the Prior Art (MPEP §2141.01)

Janssen, et al. teaches dipehnylheteroalkyl derivatives that are pharmaceutical agents (see column 13, lines 5-23). The invention is represented by the general formula:

Art Unit: 1626



where

A is $-\text{E}-\text{CH}_2-$ or

where E can be linked to the left or right phenyl nucleus and is oxygen, $-\text{S}(\text{O})_n-$ or $-\text{NR}^7-$ (with n being 0, 1 or 2),

R^1 , R^2 and R^3 are, independently of one another, hydrogen or halogen, C_{1-6} -alkyl or OR^7 , and one of the three radicals can also be nitro,

R^4 and R^5 are, independently of one another, hydrogen, OR^7 , C_{1-6} -alkyl or together form a $-\text{C}(\text{CH}_3)_2-\text{B}-\text{C}(\text{CH}_3)_2-$ ring (with B being $-\text{CH}_2\text{CH}_2-$, $-\text{CH}_2\text{CO}-$, $-\text{CH}_2\text{CHOH}-$, $-\text{CH}=\text{CH}-$ or $-\text{CH}(\text{CH}_3)-$) or a $-\text{O}-\text{C}(\text{CH}_3)(\text{Z})-\text{CH}_2-\text{CH}_2-$ ring (with Z=methyl or ethyl, each of which can be substituted by OR^7),

R^6 is hydrogen, methyl, nitro, cyano, tetrazolyl or $-\text{CH}_2\text{OR}^7$, $-\text{OR}^8$, $-\text{NR}^9\text{R}^{10}$, $-\text{CH}_2\text{NR}^9\text{R}^{10}$, $-\text{CH}(\text{OR}^{11})_2$, $-\text{SR}^{12}$, $-\text{S}(\text{O})_n\text{R}^{12}$ (n=1,2), $-\text{PO}(\text{OR}^{13})_2$, $-\text{NR}^{13}\text{OR}^{14}$, $-\text{SO}_3\text{H}$ or $-\text{C}(\text{O})\text{R}^{14}$, where

R^7 is hydrogen, C_{1-6} -alkyl or C_{1-6} -alkanoyl,

R^8 is hydrogen, C_{1-6} -alkyl, C_{1-6} -alkanoyl, or benzoyl which can be substituted, or $-\text{CH}_2-\text{C}(\text{O})\text{R}^{15}$ (with R^{15} being hydrogen, C_{1-6} -alkyl, C_{1-6} -alkanoyl, hydroxyl or $-\text{NR}^{16}\text{R}^{17}$),

R^9 and R^{10} are, independently of one another, hydrogen, C_{1-4} -alkyl, C_{1-4} -alkanoyl, or benzyl or benzoyl which can be substituted by hydroxyl or C_{1-4} -alkoxy,

R^{11} is C_{1-6} -alkoxy, it being possible for the two R^{11} radicals to form a cyclic acetal with the CH group,

R^{12} is C_{1-6} -alkyl,

R^{13} and R^{14} are, independently of one another, hydrogen or C_{1-3} -alkyl.

R^{14} is hydrogen or halogen, hydroxyl, C_{1-6} -alkyl, C_{1-6} -alkoxy, or phenoxy or benzyloxy which can be

substituted by hydroxyl or C_{1-4} -alkoxy, or $-\text{NR}^{16}\text{R}^{17}$ with R^{16} and R^{17} being, independently of one another, hydrogen, C_{1-4} -alkyl, or benzyl which can be substituted by hydroxyl or C_{1-4} -alkoxy,

as well as the physiologically tolerated salts thereof where appropriate have an improved spectrum of action.

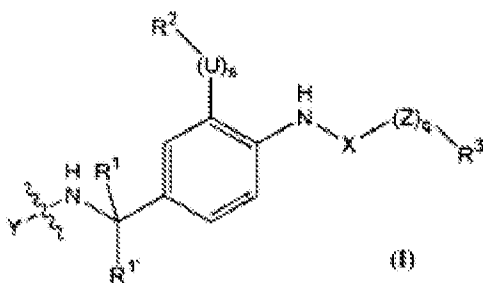
The prior art reference also teaches the specific compound wherein R^1 is H, R^2 is H, R^3 is H, R^4 and R^5 together form $-\text{C}(\text{CH}_3)_2-\text{CH}_2-\text{CH}_2-\text{C}(\text{CH}_3)_2-$; R^6 is NHCOCH_3 and A is $-\text{NHCH}_2-$ (see columns 25-26, ex.no. 116).

The Difference Between the Prior Art and the Claims (MPEP §2141.02)

The difference between the prior art of *Janssen, et al.* and the instant invention is that there is homologous subject matter. Not all of the substituents are taught, however there is overlap between the substituents disclosed especially in view of the preferred embodiments taught by the prior art. See In re Henze- "characteristics normally possessed by members of a homologous series are principally the same, and vary but gradually from member to member. Chemists knowing the properties of one member of series would in general know what to expect in adjacent members." Specifically, Applicants have excluded the prior art's compound using proviso language however, the instant compound would have a similar structure to the prior art's compound but would be substituted with a methyl group on the phenyl ring (variable R^2). The difference would be H versus methyl.

Prima Facie Obviousness-The Rational and Motivation (MPEP §2142-2413)

Applicants are claiming a compound of the formula



wherein specifically R^2 is methyl and s is 0.

The prior art reference of *Janssen, et al.* teaches a similar compound wherein the substituent (equivalent to the R^2 and $s=0$ in the instant application) is hydrogen (See ex. No. 116; columns 25-26).

In In re Druey, 319 F. 2d 237, 138 USPQ 39 (C.C.P.A. 1963), it was well established that the substitution of methyl for hydrogen on a known compound is not a patentable modification absent unexpected or unobvious results. For example, it is obvious to prepare a methyl substituted phenyl group when the art teaches a unsubstituted phenyl group with a reasonable expectation of success. Specifically, a methyl substituted phenyl and an unsubstituted phenyl are considered homologues and are obvious absent unexpected results. The motivation for one of ordinary skill in the art to substitute the phenyl group in the prior art's compound with a methyl would be to prepare more pharmaceutical agents which are used to treat various conditions such as rheumatic disorders (See column 13, lines 5-23). Therefore, it would have been prima facie obvious to one having ordinary skill in the art at the time the invention was made to prepare adjacent homologs based on the teachings of the working examples in the prior art. A strong prima facie obviousness has been established.

IV. Objections

Claim Objection-Non Elected Subject Matter

Claims 1-17 are objected to as containing non-elected subject matter. To overcome this objection, Applicant should submit an amendment deleting the non-elected subject matter.

V. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawquia Young whose telephone number is 571-272-9043. The examiner can normally be reached on 7:00 AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Shawquia Young/

Examiner, Art Unit 1626

/Rebecca L Anderson/

Primary Examiner, Art Unit 1626

Application/Control Number: 10/549,345
Art Unit: 1626

Page 11